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Economic Intelligence Report

POTENTIAL AVAILABILITY OF COTTON TEXTILES FOR EXPORT BY COMMUNIST CHINA IN 1967



CIA/RR ER 61-53

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S-E-C-R-E-T

FOREWORD

The ability of Communist China to export its major products largely determines the amount of foreign exchange available for the import of industrial machinery and materials and thus directly influences the pattern and pace of industrialization. Cotton textiles have been an important earner of foreign exchange for China. The purpose of this report is to estimate the volume of cotton textiles available for export by Communist China in 1967 and to indicate the relative importance of major determining factors. This report takes into account only internal factors -- that is, factors affecting the availability of cotton cloth for export. No survey of effective market demand in potential recipient countries has been attempted.

This report illustrates the conflict between the need to provide incentives to a large and expanding population held at a low level of consumption and the need to sustain a high volume of export of consumer goods.

- iii -

S-E-C-R-E-T

S-E-C-R-E-T

CONTENTS

	<u>Page</u>
Summary and Conclusions	1
I. Introduction	5
A. Importance of Cotton Textiles in Foreign Trade	5
B. Major Characteristics of the Chinese Cotton Textile Industry	5
II. Pattern of Use, 1952-59	7
III. Prospects for Exports, 1967	9
A. Production	9
1. Cotton	9
2. Yarn and Cloth	10
B. Pattern of Use, 1967	11
C. Exports	12
1. General	12
2. Level Based on Supplies of Domestic Cotton	13
a. Under the Hypothesis of Minimum Cotton Supply (Low Limit)	13
b. Under the Hypothesis of Maximum Expected Cot- ton Supply (High Limit)	14
3. Level Based on Increased Imports of Cotton	14

Appendixes

Appendix A. Methodology	19
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50X1

- v -

S-E-C-R-E-T

S-E-C-R-E-T

POTENTIAL AVAILABILITY OF COTTON TEXTILES
FOR EXPORT BY COMMUNIST CHINA IN 1967*

Summary and Conclusions

Communist China depends heavily on cotton textiles** as an earner of foreign exchange. Cotton textiles in 1959 accounted for roughly 11 percent of the value of Chinese exports to all non-Bloc countries and the USSR, reliable data for other countries being unavailable. In 1959, China was the world's third largest exporter of cotton piece goods, the most important category of Chinese cotton textile exports. Such exports in 1959 amounted to 545 million Chinese linear meters*** compared with 274 million linear meters exported in 1956. By comparison, in 1959 Japan exported 1.3 billion linear meters, and India exported 780 million linear meters.

It is expected that the Chinese will make strenuous efforts to maintain and increase earnings of foreign exchange from the export of cotton textiles. The fundamental determinants of China's export capacity are the availability of cotton and the extent to which the regime can continue to hold down per capita consumption for personal use without intolerably harmful effects on worker productivity. Although the regime has enormous powers of coercion and has demonstrated its ability to impose great sacrifices on the populace in times of emergency, it is believed that in relatively normal situations some restraint will be exercised in view of the need to provide at least modest incentives. This report, therefore, assumes that, with respect to personal consumption, the regime will not be either overly harsh or overly generous but that it will at least maintain the highest levels of consumption so far enjoyed by the Chinese and, if possible, will provide modest increases.

* The estimates and conclusions in this report represent the best judgment of this Office as of 1 November 1961.

** Including cotton yarn, knit goods, piece goods, and manufactured cloth goods, such as clothing.

*** The average width of a linear meter in Communist China is believed to be 84 centimeters -- thus the average Chinese linear meter is equivalent to about 1 square yard. This unit of measure is uniformly used throughout this report where China is concerned. Because Communist China does not report its trade in detail, Chinese exports of cloth must be derived from the trade returns of other countries. Except in the case of Japan, the trade data used in this report are not given in exact measurement as to width. The degree of noncomparability resulting from this situation, however, is not believed to be significant.

S-E-C-R-E-T

S-E-C-R-E-T

If the Chinese rely primarily on domestic supplies of cotton and import only a modest amount of cotton as they have done in the past, it is estimated that exports could range from 500 million to 1,200 million linear meters depending on the amount of cotton obtained under normal agricultural conditions. These export levels could be roughly doubled on the basis of increased cotton imports, although the regime probably would encounter some difficulties in such a program. Thus maximum exports could range from 1.0 billion to 2.4 billion linear meters depending on the size of production of domestic cotton. Because of probable limitations in the supply of cotton from foreign sources, it appears unlikely that China's maximum export potential could exceed 2.4 billion linear meters. If the maximum availability of 2.4 billion linear meters is realized in actual exports, China's level of exports in 1967 would be almost twice that of Japan in 1957-59. Thus the Chinese have considerable potential for diverting cotton cloth into exports if they can develop the markets in the face of the severe competition that prevails in world textile export trade.

China depends almost exclusively on the domestic production of cotton for its textile raw material. Imports have constituted only a very small proportion of the total consumption of cotton because the Chinese have been unwilling to allocate foreign exchange for this purpose. There is little likelihood that this attitude will change in the immediate years ahead, especially insofar as imports to be used to make cloth for domestic consumption are concerned. Increases in output of cotton will depend on such factors as the level of investment in agriculture, the priorities established by the Chinese for the various agricultural crops, and the degree of success which they achieve in implementing measures for the technical reform of cotton cultivation. Obviously, uncontrollable factors such as the weather will affect output of cotton. Based on normal trends, however, domestic production in 1966 (to be used by the textile mills in 1967) is expected to range from 2.3 million to 2.7 million tons.*

Even under the best conditions that can reasonably be expected for 1967, the improvement in the supply of cotton cloth will not go far toward satisfying the needs of consumers. Per capita personal consumption in 1959 amounted to only 8.0 linear meters,** an amount that places China very far down the scale of international comparisons. If the maximum production of cotton were achieved and if no cloth were diverted to exports, the Chinese could enjoy a per capita personal consumption of 12.5 linear meters in 1967. This maximum would represent a rate of increase during the 8 years 1960-67 only slightly higher than the rate of increase during the 7 years 1953-59. In concrete terms the estimated maximum increment

* Tonnages are given in metric tons throughout this report.

** For a brief discussion of projections of the total population used for estimating per capita figures, see Appendix A.

S-E-C-R-E-T

to per capita personal consumption between 1959 and 1967 -- 4.5 linear meters of cloth -- would be about enough to make one more cotton suit for an adult. The low per capita personal consumption and the high proportion that the total personal consumption claims from the total production (80 percent in 1958 and 72 percent in 1959) illustrate the pressure of a large population on inadequate supplies of cloth.

- 3 -

S-E-C-R-E-T

S-E-C-R-E-T

I. Introduction

A. Importance of Cotton Textiles in Foreign Trade

Communist China has become one of the world's leading producers and exporters of cotton textiles and, in attaining this position, has caused concern among other leading exporters, notably Japan and India. Exports of cotton textiles are among China's principal exports and are important to the Chinese as a means of earning foreign exchange with which to purchase investment goods for their driving program of industrial development. Exports of cotton textiles are important also as a means of enhancing Chinese political influence, especially among underdeveloped countries and among countries with large populations of overseas Chinese. Non-Bloc countries receive well over half of Chinese exports of cotton textiles, although exports to the Bloc -- especially to the USSR -- are important in helping to finance Bloc exports to China. In 1959, cotton textiles are estimated to have accounted for about 12 percent of exports to non-Bloc countries and about 11 percent of exports to the USSR. Exports to the USSR have risen sharply since 1958. The largest share of China's exports to non-Bloc countries goes to other Asian countries. Other non-Bloc recipients are in Africa, the Middle East, and Western Europe.

Exports of cotton textiles consist of cotton yarn, knit goods, piece goods,* and manufactured cloth goods, such as clothing. Piece goods are the most important among the categories in terms of volume -- other categories are exported in much smaller quantities. This report focuses on piece goods and assumes that, for practical purposes, exports of piece goods may be regarded as an index of textile exports generally.

B. Major Characteristics of the Chinese Cotton Textile Industry

Communist China in 1959 was second only to the US in world production of cotton cloth in terms of length. Chinese output during 1952-59 was as follows:

<u>Year</u>	<u>Million Linear Meters**</u>	<u>Year</u>	<u>Million Linear Meters**</u>
1952	4,158	1956	5,862
1953	5,001	1957	5,135
1954	5,541	1958	5,780
1955	4,510	1959	7,500

* The term piece goods as used in this report includes finished cloth and gray goods (unbleached or undyed cloth).

** Including native cloth, production of which amounted to 329 million linear meters in 1952 and is estimated to have been nil in 1959.

- 5 -

S-E-C-R-E-T

S-E-C-R-E-T

During 1952-59 the Chinese made large additions to the capacity of their cotton textile industry. There were 5.6 million spindles in place at the end of 1952, and it is estimated on the basis of announcements that by the end of 1959 the industry had 9.2 million spindles. Weaving capacity also was increased greatly, although a proper balance between spindles and looms has not yet been achieved. The Chinese are continuing to expand the cotton textile industry, and it is estimated that by the end of 1962 the Chinese will have an installed capacity of from 10.6 million to 11.6 million spindles. 1/* It is probable that at the same time the serious imbalance between spindles and looms will have been redressed to a large extent, with the promise of full solution during 1962-67.

The Chinese cotton textile industry is based almost exclusively on cotton grown in China. Imports of cotton by the Chinese Communists have been very small in relation to the total consumption of cotton because the Chinese have been unwilling to allocate foreign exchange to purchase foreign cotton, especially for consumer welfare. Except in 1959, Chinese cotton exports have been very small by comparison with imports. During 1952-58, net imports reached little more than 80,000 tons in any year. The result of dependence on domestic resources of cotton has been that, although the quality of Chinese cotton has improved, the Chinese textile industry in most years since 1952 has had less cotton than it could use. Restrictions on the supply of cotton remain a basic limitation on expansion of production of cotton textiles in China.

Parallel with the growth of the cotton textile industry has been a large increase in exports of cotton textiles. China is estimated to have been in third place among the world's exporters of cotton piece goods in 1959 in terms of linear meters, with 545 million linear meters. By comparison, Japan in 1959 exported 1.3 billion linear meters, and India exported 780 million linear meters.** Chinese exports of piece goods to non-Bloc countries, the USSR, and the European Satellites during 1955-59 are estimated to be as follows (the very large increase in exports to the USSR in 1959 should be noted):

*** See the third footnote on p. 1, above.

50X1

S-E-C-R-E-T

S-E-C-R-E-T

<u>Exports (Million Linear Meters)</u>				
<u>Year</u>	<u>To Non-Bloc Countries*</u>	<u>To the USSR</u>	<u>To the European Satellites</u>	<u>Total*</u>
1953	2.4	N.A.	N.A.	N.A.
1954	14.2	N.A.	N.A.	N.A.
1955	116.3	0.3	N.A.	N.A.
1956	268.5	0.7	4.5	273.7
1957	301.4	1.0	4.0	306.4
1958	359.6	2.0	5.0	366.6
1959	391.0	148.9	5.0	544.9

Chinese exports to the USSR amounted to 100 million linear meters in 1960.

Although exports of cotton textiles are principally in the field of inexpensive goods, the quality of exported items compares favorably with comparable Japanese types. Quality and variety of exports are expected to improve. One aspect of such improvement probably will be an increase in the use of higher count yarns, as the Chinese are investing in new capacity for spinning yarns of this type. Chinese imports of cotton textiles have been negligible, a reflection of the low priority that the regime assigns to consumer goods.

II. Pattern of Use, 1952-59**

The availability of cloth for export depends largely, of course, on the volume of domestic requirements. Because the supply of cloth in Communist China is short and because the regime exercises complete control over distribution, export availabilities reflect the willingness of the regime to deprive domestic users. There are significant differences, however, in the motivations that influence government decisions concerning different types of consumption. An analysis of the pattern of use of cotton cloth during 1952-59 will facilitate a judgment as to the level of availability for exports in 1967. The categories that make up this pattern will be subsequently projected for 1967 as an aid in estimating availability in 1967.

* Perhaps including some double counting.

** For details of the methodology for this and subsequent sections, see Appendix A.

S-E-C-R-E-T

S-E-C-R-E-T

The categories of use of cotton cloth in China and the estimated volume allocated to each category in 1959 are as follows:

<u>Category of Use</u>	<u>Million Linear Meters</u>	<u>Percent</u>
Personal consumption	5,400	72
Social consumption	578	8
Industrial consumption	682	9
Exports of piece goods	545	7
Other (excluding stocks carried over)	295	4
Total (excluding stocks carried over)	<u>7,500</u>	<u>100</u>
Total production, 1959	7,500	

Personal consumption claims the largest share of each year's production. This type of consumption refers to that cloth which is used by persons for apparel, bedding, house furnishing, and minor personal uses, and it includes piece goods as well as manufactured cloth goods. The per capita availability of cotton cloth for personal consumption is very small, and cloth is therefore rationed. To underscore the meagerness of the supply, it should be noted that cotton is the only textile material in common use in China. The supply of wool textiles is negligible. Winter clothing and bedding are made of cotton cloth padded with cotton. Per capita personal consumption amounted to only 8.0 linear meters in 1959, having grown from 5.5 linear meters in 1952.* The small per capita personal consumption and the large proportion that the total personal consumption represents in the total production illustrate the pressure of a large population on inadequate supplies of cloth.**

Social consumption in China refers to that cotton cloth which is used by public institutions, other governmental activities except the military services, and industrial enterprises. Public institutions, hospitals, and commune health stations are some of the largest users of cotton cloth, and their consumption is enhanced to the extent that individuals participate in the functioning of public institutions. Social consumption grew from 68 million linear meters in 1952 to 173 million linear meters in 1957 and then increased greatly in 1958-59 with the expansion of communal social services.

* It is believed that the poor cotton crops in 1959 and 1960 resulted in large reductions in rations in 1960 and 1961.

** For a discussion of international comparisons of personal consumption, see Appendix A.

S-E-C-R-E-T

Industrial consumption refers to cotton cloth that is used to make products of industry and cloth normally used in association with an industrial process, as in the bagging of flour. Industrial consumption was reported to have been much greater in 1958 and 1959 than in previous years.

Exports of piece goods have been given in the tabulation above. In addition to piece goods, manufactured cloth goods (such as clothing and house furnishings) are exported in much smaller physical volume. Such exports of manufactured cloth goods are included in the category of industrial consumption and are estimated to have been equivalent to 22 million linear meters in 1959.

Other uses include allocations to the military services and any augmentation of stocks that the Chinese might undertake in a given year. Peacetime allocations to the military services are believed to be about 50 million linear meters a year. Allocations to increase stocks are unknown.

III. Prospects for Exports, 1967

A. Production

1. Cotton

Production and allocation of cotton cloth in 1967 will depend basically on the volume of Chinese Communist production of cotton in 1966* and on Chinese domestic needs for the cloth made from that cotton. The rate of increase in production of cotton will depend on such factors as the level of investment in agriculture during 1960-66, the priorities that the Chinese determine for various agricultural crops,** and the success that they achieve in implementing various technical reform measures applied to cultivation of cotton. It is believed that the rate of increase in production will fall within a range such that the minimum production of cotton in 1966 will be 2.3 million tons and the maximum production 2.7 million tons. These estimates are based on normal rather than extreme weather conditions. It is probable that, in addition to domestic production, the normal level of imports will continue during 1960-67. Accordingly, it is assumed that net imports will amount to about 100,000 tons in 1967, or somewhat more than the highest annual amount imported during 1952-58. Thus the Chinese are expected to have 2.4 million to 2.8 million tons of cotton available in 1967 for the textile industry and for other uses. The question of whether the Chinese

* Disregarding cotton imports, production of cotton textiles in a given year is based roughly on the cotton crop of the previous year.

** The regime probably will be under heavy pressure for an indefinite period to increase production of food crops, primarily grain.

S-E-C-R-E-T

will increase imports of cotton above the assumed 100,000 tons will be deferred until full account is taken of their prospects based on the normal supply pattern.

The remainder of the discussion of prospects for 1967 will be in terms of two different situations of supply which for convenience will be designated the low limit and the high limit. The low limit situation will be that in which the supply of cotton is assumed to be 2.4 million tons, whereas in the high limit situation the supply is assumed to be 2.8 million tons. These limits will help to establish the extreme possibilities, although the actual supply may be at some intermediate point.

2. Yarn and Cloth

Most of the total supply of cotton in 1967 will be used in the textile mills to make cotton yarn, but a substantial proportion will be allocated to nonmill uses, especially for padding for clothing and bedding. The yarn in turn will be mostly woven into cloth, but a considerable amount will be used for production of knit goods, and some will go into various industrial uses, notably the making of tire cord and fish nets. Small amounts of yarn will be exported. The following tabulation shows estimated allocations of the supply of cotton in 1967 and the estimated production of textile goods made from that part of the cotton which is allocated to cotton textile mills. The tabulation below contains calculations for each of the two limits of the supply situation:

	<u>Unit</u>	<u>Low Limit</u>	<u>High Limit</u>
Supply of cotton	Thousand Tons	<u>2,400</u>	<u>2,800</u>
Not used in textile mills	Thousand Tons	634	634
Used in textile mills	Thousand Tons	1,766	2,166
Yarn produced from the cotton used in textile mills	Thousand Tons	<u>1,660</u>	<u>2,036</u>
Knit goods	Thousand Tons	396	396
Nontextile uses*	Thousand Tons	50	50
Cloth	Thousand Tons	1,214	1,590
	Million linear meters	9,197	12,045

* Including exported yarn.

S-E-C-R-E-T

Thus the low limit of 2.4 million tons of cotton results, after intermediate allocations, in an estimated production of 9.2 billion linear meters of cloth. Correspondingly, the high limit results in an estimated production of 12.0 billion linear meters. Actual production, of course, could be at some intermediate point if the supply of cotton is at some point between 2.4 million and 2.8 million tons.

Mill capacity is expected to be adequate by 1967 to produce the higher amount of yarn indicated in the tabulation above. It has been previously stated that by the end of 1962 the Chinese will have from 10.6 million to 11.6 million spindles. Even if the lower end of this range is achieved, the regime should not find it difficult during 1963-66 to add the requisite mill capacity, which would amount to somewhat more than 1 million spindles with their complement of looms. The textile machinery industry is well developed and can produce at least 1 million spindles per year without difficulty.

B. Pattern of Use, 1967

Exports of cotton cloth in 1967 will of course depend largely on Chinese domestic needs. The pattern of use that obtained during 1952-59 has been estimated above and has been given for 1959 in a breakdown of production in that year. It is expected that the major categories of use will claim greater absolute amounts in 1967 than in 1959. Among these categories, personal consumption will require the greatest amount of cloth and will be the most important factor related to availability for export. In order to isolate the major problem, it will be useful to measure nonpersonal domestic uses to determine what is left for personal consumption and export. Estimated projections of nonpersonal use for 1967 compared with the estimates for 1959 are as follows:

	<u>Million Linear Meters</u>	
	<u>1959</u>	<u>1967</u>
Social consumption	578	854
Industrial consumption	682	1,265*
Other	295	50

The following tabulation relates these projected allocations for nonpersonal uses to the two alternative magnitudes of production of cloth

* Excluding manufactured goods for export. For the methodology, see Appendix A.

S-E-C-R-E-T

S-E-C-R-E-T

estimated for 1967 and shows for each limit a residual amount of cloth available for personal consumption and export:

	<u>Million Linear Meters</u>	
	<u>Low Limit</u>	<u>High Limit</u>
Total production	9,197	12,045
Minus:		
Social consumption	854	854
Industrial consumption	1,265	1,265
Other	50	50
Residual for personal consumption and export	<u>7,028</u>	<u>9,876</u>

Thus it is estimated that in 1967 the Chinese will have between 7.0 billion and 9.9 billion linear meters of cloth available for personal consumption and export. The two large residuals represent approximations of the two limits within which the Chinese will have to determine the availability of cotton cloth for export. The two alternatives will be discussed below (see C, 2, a* and b**).

C. Exports

1. General

It is expected that the Chinese will make strenuous efforts to increase exports of cotton textiles as much as possible. In this endeavor the regime is faced with two major alternatives -- to restrict domestic consumption and/or to increase production of textiles on the basis of net cotton imports in excess of the assumed normal level of 100,000 tons. Although maximization of exports depends in considerable part on the restriction of consumption, it should be noted that the regime is not assumed to be under a compulsion to maximize exports in spite of the pressures to earn foreign exchange. If the regime should not desire or should be unable to achieve its maximum export potential, it could allow further increases in personal consumption.

The possibilities for restricting consumption in use categories other than personal consumption appear to be very limited. As long as

* P. 13, below.

** P. 14, below.

S-E-C-R-E-T

China remains primarily dependent on cotton for most uses, personal consumption will nearly always suffer in some way by such reductions. All uses of cotton, yarn, and cloth are already conservatively estimated, and changes would accomplish little more than to shift sacrifice from one type of personal consumption to another. The diversion of cotton from nonmill uses and of yarn from production of knit goods to nontextile uses would in itself decrease personal consumption of items important to the Chinese. Cotton padding is necessary for warmth, and knit goods as estimated above will be in low supply and will in part be exported. Reduction of social consumption of cotton cloth would reduce personal consumption indirectly. Industrial consumption probably would be least adjustable in the eyes of the regime. Only slight relief can be expected by 1967 from the expanded production of textiles from other fibers, notably manmade fibers and so-called wild fibers. Some further relief may be obtained by that time from the substitution of paper for bagging purposes, although the raw materials needed for making heavy-duty bagging paper of good quality are in short supply. Because of these limitations it is assumed that requirements for nonpersonal consumption cannot be significantly reduced and that, in the absence of additional imports of cotton, exports can be increased only at the expense of per capita personal consumption.

The question of how far per capita personal consumption can be suppressed prudently is not simply one of applying brute force. The regime, of course, has enormous powers of coercion and has demonstrated the capability to impose great sacrifice on the populace in times of emergency. It is believed, however, that in normal times the regime will exercise some restraint in view of the need to maintain at least modest incentives. The economy will continue to become more industrialized, and the growing urban population is expected to demand material incentives for higher industrial productivity. The regime also must be concerned about the morale of the peasants, who are easily inclined to make invidious comparisons of their living standards with those of city dwellers. These considerations are strengthened by the fact that, within the narrow range of goods for consumption available to the Chinese, the most important item, food, showed an estimated increase in per capita terms of only 4.2 percent in value during 1953-59 and gives promise of little increase during 1960-67. 2/ It is expected, therefore, that the regime will at least maintain the best levels of consumption of cotton cloth so far enjoyed by the Chinese and, if possible, will provide modest increases.

2. Level Based on Supplies of Domestic Cotton

a. Under the Hypothesis of Minimum Cotton Supply (Low Limit)

If the previously estimated residual cloth allocation for personal consumption and export (7 billion linear meters) were in fact to be used for personal consumption alone, per capita personal consumption in

S-E-C-R-E-T

S-E-C-R-E-T

1967 would be only 8.9 linear meters, or only about 11 percent more than in 1959. It should be reemphasized that the projections of production of cotton cloth for 1967 are based on normal and not extreme agricultural prospects.

It is believed that the Chinese in 1967 can export at least 500 million linear meters, or about the level of export in 1959. Exports of this magnitude would reduce per capita personal consumption from 8.9 to 8.2 linear meters. Such consumption could be reduced further to 8.0 linear meters, or to the level that the average Chinese actually enjoyed in 1959. This further reduction would permit exports to rise from 500 million to about 700 million linear meters.

b. Under the Hypothesis of Maximum Expected Cotton Supply
(High Limit)

If all the 9.9 billion linear meters of cotton cloth assumed to be available for personal consumption and export in 1967 were in fact used for personal consumption, per capita personal consumption would amount to 12.5 linear meters. This amount would represent a rate of increase during the 8 years 1960-67 only slightly higher than the rate of increase during the 7 years 1953-59 and would still be a very small ration in a country that will remain almost entirely dependent on cotton textiles. In concrete terms the estimated maximum possible addition to per capita personal consumption between 1959 and 1967 -- 4.5 meters of cloth -- would be about enough to make one more cotton suit for an adult.

Under the conditions just outlined it is believed that per capita personal consumption could reasonably be held at 11 linear meters instead of being allowed to expand to 12.5 linear meters. If consumption were held at 11 meters, it would improve at a slower rate than that implied by a personal consumption of 12.5 meters, but an absolute increase in 1967 above 1959 nevertheless would be provided. The personal ration of 11 linear meters per capita is believed to represent the greatest restriction of consumption that is at the same time consistent with a reasonable allowance for worker incentives. The level of exports corresponding to a personal ration of 11 linear meters is 1.2 billion linear meters.

Thus a minimum of 0.5 billion linear meters can be exported under conditions of the low limit, and a maximum of 1.2 billion linear meters under those of the high limit.

3. Level Based on Increased Imports of Cotton

So far, this report has considered the level of exports that Communist China could achieve by relying almost entirely on domestic raw materials. This section attempts to determine the extent to which Chinese

- 14 -

S-E-C-R-E-T

S-E-C-R-E-T

exports of cloth could be further increased if annual imports of cotton were raised above the assumed normal level of 100,000 tons. For example, the importation of 70,000 tons in addition would provide sufficient raw material to increase exports by 500 million linear meters. There is ample precedent for reliance on imported materials. Japan and the UK entirely sustain their large textile production, including large exports, on the basis of imported cotton.*

The Chinese, however, probably would experience considerable difficulty in exploiting this opportunity. Even under the best conditions that can reasonably be expected for 1967, the improvement in the supply of cotton will not go far toward satisfying consumer demand. Under conditions of continued deprivation, Chinese consumers would strongly resent the diversion of more cloth into export markets even if expanded imports of cotton made it possible for rations to remain substantially unchanged. There is no really satisfactory way to relate discontent to specific levels of exports, nor can the effects of discontent be accurately forecast. It can at least be expected that the regime would achieve some success in getting the population grudgingly to accept the use of imported cotton to expand exports. Persuasion would be made easier, of course, if tolerable and gradually increasing levels of consumption had been maintained and if the people believed that the government sincerely intended to continue improvement, however modest. In any event, the regime is expected to have some regard for worker morale because of the aforementioned need to maintain incentives.

It is possible that high costs might inhibit the rapid expansion of exports based on imports of cotton. The possibility is suggested by the more modern and efficient machinery and the more economical use of labor in many of the mills in Japan. Data are insufficient, however, to permit sound judgments as to comparative costs and the Chinese regime's probable reaction to them. In the first place, money costs are differently reckoned and differently regarded in China and Japan; in particular, it would be extremely difficult to determine unit wage costs in terms of the relative burdens borne by those who pay the respective wage bills -- the commercial organization in the case of Japan and the central government in the case of China. In China the less efficient use of labor would have to be weighed in terms of alternative employments. Because of difficulties with their balance of payments, the Chinese can be expected to tolerate some sacrifice in order to realize the margin of foreign exchange earnings from exports of cloth over foreign exchange outlays for imported cotton. The prices of this cloth and cotton are determined by competitive

* During the 5 cotton years 1954/55 to 1958/59, Japan's imports of cotton averaged 534,000 tons. During 1957-59, Japanese production averaged 3.4 billion linear meters, and exports averaged a magnitude equivalent to 1.3 billion linear meters annually.

S-E-C-R-E-T

S-E-C-R-E-T

forces in world markets, and the more severe the competition in world markets for cotton cloth, the narrower the margin will tend to become. If costs in real terms turned out to be excessive in comparison with the expected foreign exchange margin, the Chinese might find it difficult to justify a sustained export effort until ameliorative action could be taken. To reduce costs, the Chinese could replace the obsolescent models of textile machinery presently in production and could make greater efforts to grow better grades of cotton. Limitations in the supply of cotton from foreign sources may be a further constraint on Chinese export possibilities.

In view of these intangible factors, only the roughest estimate of the extent of additional exports is possible. It is therefore suggested that exports can be doubled by increasing imports of cotton above the normal level of 100,000 tons previously discussed.*

Thus exports in 1967 could reach maximum limits of 1.4 billion and 2.4 billion linear meters at the low and high limits, respectively. Chinese exports of 1.4 billion linear meters in 1967 would slightly exceed Japan's average annual exports in 1957-59, whereas exports of 2.4 billion linear meters would be almost twice Japan's export level in 1957-59. The higher level of Chinese exports would require an increase in production of cloth from 12.0 billion to 13.2 billion linear meters and an increase in imports of cotton from 100,000 to 270,000 tons. This increase in production would in turn require an expansion of capacity by about 1 million spindles with associated looms and auxiliary equipment. Textile machinery plants can now provide this amount of additional spindles in less than 1 year. Exports of 2.4 billion linear meters in 1967 would claim 18 percent of the total production of cloth compared with 7 percent in 1959.

Although it is difficult to make precise judgments, it appears to be unlikely that China's maximum export potential could be set higher than 2.4 billion linear meters, because of probable limitations in the supply of cotton from foreign sources. In order to exceed an export level of 2.4 billion linear meters, China's share of world imports (about 2 to 3 percent before 1961) would have to rise beyond 7 percent in terms of 1959/60 world export levels. Although the USSR could supply sizable quantities of cotton to China, the USSR cannot yet satisfy the import requirements of the European Satellites. Moreover, the Chinese might prefer not to increase their dependence on the USSR. The US, which supplies about 40 percent of the world exports of cotton, does not trade with Communist China. The UK probably is reluctant to supply large amounts of cotton from areas under its control to competing Chinese textile industries. Similarly a number of other cotton exporters having strong commitments

* See pp. 6 and 10, above.

S-E-C-R-E-T

S-E-C-R-E-T

to supply the UK and Japan might be influenced not to supply large amounts to China. Egyptian cotton has been offered to China in the past, but Egypt's long-staple fiber is too fancy for the low-cost gray goods that form the bulk of China's exports.

Thus the Chinese have considerable potential for diverting cloth into exports if they can develop the markets. Although world market requirements for textiles should rise with the rapid expansion of the population, competitive conditions in the world textile export trade are expected to remain severe. Difficulties include the protection of declining industries in the industrialized countries; large and increasing supplies in export markets from low-cost sources such as Hong Kong, India, Pakistan, and Japan; and the protection of infant industries in many of the newly developing countries, including those of Southeast Asia, presently one of China's most important export markets for piece goods. 3/ These complex problems, however, are beyond the scope of this report.

S-E-C-R-E-T

S-E-C-R-E-T

APPENDIX A

METHODOLOGY

1. Estimate of Nonmill Use of Cotton

Most cotton not used in textile mills in Communist China is used for padding of clothing and bedding. It is therefore believed that the volume of such use in 1967 should be related to the population. The estimate of 634,000 tons is derived by using the average per capita supply of nonmill cotton for the period 1956-59. The per capita supply amounted to 0.8 kilogram (kg). This estimate, of course, implies no improvement in per capita supply by 1967 and may therefore be low.

2. Yield of Yarn from a Given Amount of Raw Cotton

The weight of the yarn produced from a given amount of raw cotton in Communist China is approximately 94 percent of the weight of the raw cotton used to produce it. This rate is higher than that which obtains in many countries and results in production of a high proportion of coarse yarns.

3. Estimate of Knit Goods, 1967

Production of knit goods during 1952-59 was very small and in per capita terms reached only 0.34 kg in 1959. Per capita production in 1959 was three times that in 1952, however, and was to have risen again in 1960 to 0.39 kg (the plan for 1960 probably was not fulfilled). The rapid rate of increase during 1952-59 and the further increase originally planned for 1960 suggest an intent to reach some level less meager than has been attained thus far. On the other hand, if the rate characterizing the period 1952-59 and the 1960 plan were maintained, a disproportionate volume of knit goods relative to the total production of cotton textiles would be produced. For 1967, therefore, it is assumed that the Chinese will produce at a per capita rate of 0.5 kg resulting in a total production of 396,000 tons, but this estimate may be low.

4. Average Weight of Cotton Cloth

By the first half of 1957 the average weight of cotton cloth had declined to about 132 kg per 1,000 linear meters. This figure is somewhat heavier than obtains in some other countries, including the US and the USSR.

S-E-C-R-E-T

S-E-C-R-E-T

5. Derivation of Categories of Use and Calculation of Their Magnitude Through 1959

Personal consumption is derived from announcements that pertain to the annual consumption of cotton cloth, excluding native cloth. 4/ The annual production of native cloth was estimated and added to figures thus derived. It is assumed that each year's production of native cloth was wholly consumed, the error arising from this assumption probably being small.

Although the use categories Social Consumption, Industrial Consumption, and Other are not formal Chinese categories in the sense that they are reported periodically or defined by the Chinese, they have been discussed with sufficient frequency by the Chinese to make it possible to define them roughly. Totals for Social Consumption and Industrial Consumption have been derived from announcements. 5/ The magnitude calculated for the category Other is a residual of the current year's production.

6. Personal Consumption

Personal consumption claims the largest share of each year's production of cotton cloth. The term refers to that cotton cloth which is used by persons for apparel, bedding, home furnishings, and minor personal uses and includes piece goods and manufactured cloth goods.

Personal consumption of cotton cloth during 1952-59 has been as follows:

Year	Estimated Personal Consumption* (Million Linear Meters)	Estimated Personal Consumption as a Percent of Production	Estimated Per Capita Personal Consumption (Linear Meters)
1952	3,142	75.6	5.5
1953	4,215	84.3	7.2
1954	4,102	74.0	6.9
1955	3,998	88.6	6.5
1956	5,193	88.6	8.3
1957	4,065	79.2	6.3
1958	4,620	79.9	7.0
1959	5,400	72.0	8.0

* Including native cloth.

S-E-C-R-E-T

This tabulation indicates that per capita personal consumption averaged about 7.2 linear meters during 1953-59.

The increase in per capita personal consumption from 5.5 linear meters in 1952 to 8.0 linear meters in 1959 was an increase of about 45 percent, or an average annual increase of 5.5 percent. This large increase from a small base left the Chinese still with a very low level of consumption compared with the levels of advanced countries. The fluctuations in per capita personal consumption during 1952-59 resulted from fluctuations in the size of Chinese cotton crops and demonstrate the fact that the supply of cotton cloth in China is uncertain as well as meager. Scarcity necessitates strict rationing, and it is believed that by 1959 the individual cloth ration of 8 linear meters was equivalent to per capita personal consumption in that year. Per capita personal consumption is believed to have diminished in 1960 and to have plummeted in 1961 as a result of the poor cotton crops in 1959 and 1960.

Personal consumption will be the largest element in the pattern of use in 1967 as it is at present. The present per capita level of personal consumption -- 8.0 linear meters in 1959 and probably less in 1960 -- is very low in relation to needs and in comparison with more advanced countries and is estimated to be somewhat lower than in India. Exact international comparisons are not available. The following tabulation compares the total per capita availability of cotton cloth for several countries in recent years:

Country	Per Capita Availability in Terms of Weight* (Kilograms)	Per Capita Availability in Terms of Length* (Linear Meters)
US (1959)	7.71	49.1
USSR (1959)	3.56	29.3
India (1958)	N.A.	14.8
Communist China (1959)	1.36	10.3

These figures, because they include cloth for all uses, do not constitute a direct comparison of per capita personal consumption. It is a fact, however, that the more advanced countries allocate proportionally much more cloth to nonpersonal consumption than do less advanced countries.

* Calculated on the basis of production plus imports minus exports. Variation in the ratio of weight to length among the countries is caused by different average weights of cloth.

S-E-C-R-E-T

With this qualification, it may be said that personal per capita consumption in the US and the USSR is very much greater than in India and Communist China and that the figures for India and China include much less cloth for nonpersonal uses and indicate roughly that India is somewhat ahead of China. Other comparisons also place China far down the scale of international comparisons with respect to per capita personal consumption of cotton cloth.*

The impact of the meagerness of Chinese supplies of cotton for personal consumption and the poverty of China in comparison with many other countries is greatly intensified by the fact that cotton is almost the only material available in China for clothing, bedding, and other personal uses. Winter clothing consists of outer clothing made of cotton cloth padded with cotton batting and of cotton knitwear, which also is in very short supply.** Winter bedding is likewise made of cotton cloth padded with cotton. Very little wool is used for clothing or bedding in China.

Finally, it may be pointed out that if the Chinese should produce 12.0 billion linear meters in 1967 and if they were to export 1 billion linear meters, the total per capita availability in 1967 would be only 13.9 linear meters compared with a total availability of 14.8 linear meters in India in 1958 as shown in the above tabulation.

7. Social Consumption

Social consumption in China refers to that cotton cloth which is used by public institutions, other governmental activities except the military services, and industrial enterprises. Public institutions, hospitals, and commune health stations are some of the largest users of cotton cloth. Social consumption during 1952-59 was as follows:

* For example, net per capita availability of cloth for apparel only in the US in 1957 was equivalent to about 4.3 kg of cotton. The total Chinese per capita consumption of 8.0 linear meters of cotton cloth was equivalent to about 1.1 kg of cotton. In France in 1956, cloth for apparel only is estimated to have been equivalent to about 1.8 kg of cotton per capita. 6/

** The total per capita production of knit goods in 1959 was only 0.34 kg. Some knit goods are exported.

S-E-C-R-E-T

S-E-C-R-E-T

<u>Year</u>	<u>Social Consumption*</u> <u>(Million Linear Meters)</u>	<u>Social Consumption</u> <u>as a Percent of Production</u>
1952	68	1.6
1953	100	2.0
1954	97	1.8
1955	87	1.9
1956	180	3.1
1957	173	3.4
1958	320	5.5
1959	578	7.7

The large increase in 1958 and again in 1959 was caused by the rapid development of the commune movement, involving as it did a large increase in public facilities such as messhalls, health stations, nurseries, and schools. 7/ Even though a bare minimum of cloth might be used in each new commune facility, the large number of such new facilities could easily occasion a large total increment to social consumption.

It is estimated that social consumption will increase during 1960-67 at an average annual rate of 5.0 percent above its 1959 level of 578 million linear meters, with a resulting magnitude of 854 million linear meters in 1967. Because the large increases in 1958 and 1959 were caused by the growth of the communes, it is believed that large increases such as occurred in those years will not continue beyond the first 2 or 3 years when the new public organs were supplying themselves with equipment. An average annual increase of 5.0 percent after the initial stage takes account of the growth of population and also provides a margin for expansion of social uses. In spite of considerable reorganization of communal production activities during 1960-61, the social functions of communes appear to have been largely maintained. The Chinese expect a continuing growth of social consumption. 8/

8. Industrial Consumption

Industrial consumption in this report includes cotton cloth used to make products of industry and cloth normally used in association with an industrial process, such as in the bagging of flour. The term excludes cloth used in manufactured cloth goods, however, if that cloth is included in other categories such as personal or social consumption. Thus, for example, industrial consumption excludes cloth used in the tailoring industry except that cloth used to make clothing

* Including native cloth.

S-E-C-R-E-T

S-E-C-R-E-T

which is exported. Principal uses of cotton cloth in Chinese industry are in making flourbags and tarpaulins and in packaging. A large number of minor uses in China include the making of shoes of canvas and rubber, industrial flat belting, filter cloth, and hoses.

The Chinese have given figures only for 1958 and 1959 but have said that industrial uses of cotton cloth increased greatly in 1958 above 1957. Cotton cloth used in industry in 1958 amounted to 713 million linear meters, or 12.3 percent of the total production. In 1959, 682 million linear meters were used, or 9.1 percent of the total production.

The following tabulation gives the detailed allocation of the total cotton cloth used in industry for 1959 and shows the projection for 1967 of each allocation:

Item	<u>Million Linear Meters</u>	
	<u>Year</u>	
	<u>1959</u>	<u>1967</u>
Flourbags	299	359
Sugarbags	12	35
Wrapping cloth	108	277
Footwear (canvas with rubber soles)	44	89
Manufactured cloth goods exported	22	*
Other industrial uses	197	505
Total	<u>682</u>	<u>1,265</u>

The allocations for 1959 for flourbags, sugarbags, and cloth for footwear were calculated from input factors. Wrapping cloth was derived from an announcement. 9/ The figure for manufactured cloth goods exported was a rough estimate based on exports of such goods to Hong Kong, the second largest recipient of Chinese cotton textile exports. This category is not projected for 1967, because the projection for industrial consumption for 1967 is intended to include only domestic uses. The category Other Industrial Uses is a residual and is believed to contain the following items: sailcloth coverings, other tarpaulins, flat belting, tents, sails, bagging other than flour and sugar, mosquito netting, luggage, bookbindings, hoses, gauze and tape for medical use, upholstery, filter cloth, tire fabric, insulation, and other minor items.

* Not projected for 1967.

S-E-C-R-E-T

S-E-C-R-E-T

The basis for the projection of each item of allocation follows. Flourbags, sugarbags, and cloth for footwear were based on estimated production of flour, sugar, and footwear in 1967. Wrapping cloth and the category Other Industrial Uses are believed to be closely related to industrial growth and were projected approximately in accordance with expected rates of industrial growth -- 1960 is considered to have shown an increase of 16 percent above 1959, and the period 1961-67 is characterized by an average annual increase of 12 percent. ^{10/} The category Manufactured Cloth Goods Exported was not projected, and the figure of 1,265 million linear meters includes only that cloth consumed domestically.

9. Other Uses, 1967

The projection of other uses includes estimated military requirements only, which are held constant at 50 million linear meters. Additions to stocks are excluded, although there might in fact be such additions as of the end of 1967.

10. Population Figures for Communist China

The population statistics used in this report are midyear figures, as follows:

<u>Year</u>	<u>Million Persons</u>	<u>Year</u>	<u>Million Persons</u>
1952	570	1958	657
1953	583	1959	674
1954	596	1960	689
1955	611		
1956	626	1967	792
1957	641		

Growth of population is projected at about 2.0 percent from 1961. This rate represents a decline from previous estimates and reflects the impact of China's agricultural difficulties on growth of population.

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